AISHWARYA DEENGAR
aishwaryadeengar@gmail.com | GitHub: /AishwaryaD1 | LinkedIn: /aishwaryadeengar | (617)516-9981

EDUCATION

CASE WESTERN RESERVE UNIVERSITY July 2024
Ph.D. Systems Biology and Bioinformatics
BOSTON UNIVERSITY Jan 2021
Master of Science in Bioinformatics **3.9/4.0**
Courses- Applications in Translational Bioinformatics, Biological Database Systems, AI in Systems Biology
DELHI UNIVERSITY Jul 2017 – Jun 2019
Master of Science in Biomedical Sciences **First Division**
Courses- Immunology, Medical Microbiology, Molecular Biology and Biotechnology, Molecular Oncology

SKILLS

Programming: R, Python (Numpy, Pandas, Scikit-Learn, BioPython), Shell Scripting, MATLAB, HTML/CSS, SQL
Tools and Packages: Bioconductor, BLAST, STAR, featureCounts, samtools, Salmon, DESeq2
Software: Geneious, Galaxy, GraphPad Prism, WEKA, SnapGene, Cytoscape, ImageJ
Wet Laboratory Skills: Cell Culture: iPSCs, mammalian and insect cell lines, Molecular Biology and RDT Techniques: Genomic and plasmid DNA, RNA and Protein isolation, Rolling Circle Amplification, Library preparation, PCR, qPCR, ddPCR, Cloning, Transformation, Transfection, Transduction, ELISA, Electroporation, Western Blot, Immunofluorescence Assay, Mouse and human tissue dissections and dissociations, Organoid tissue engineering, Luciferase Assay, RNA/DNAScope
Sequencing Platforms: ISeq 100, NextSeq 550 & 2k, MinION, MiSeq, Chromium 10X

EXPERIENCE

Ring Therapeutics Inc., Cambridge, MA
Senior Research Associate- Computational Biology Sep 2022-Apr 2024

- Deploying multiomic single-cell sequencing assays across in-vitro and in-vivo optimization experiments to understand anellovirus tropism and gene expression
- Contributing to experimental design and optimizations on multiple indication programs and cross-functional teams
- Conducting exploratory studies using ancient DNA for evolutionary analyses of anelloviruses and optimizing the metagenomic pipeline to explore and characterize the 'anellome' in NHP and rodents

Research Associate II- Computational Biology Jun 2021-Sep 2022

- Assisted in anellovirus exploration, identification, and characterization in human tumor biopsy samples and brain, liver, muscle, and cartilage samples obtained from NDRI using wet laboratory and bioinformatics techniques
- Spearheaded anellovirus research in NHP and rodent samples, amplifying vector candidate discovery by almost 900%

National Emerging Infectious Diseases Laboratory, Boston University May 2020-Dec 2020
Research Volunteer

- Interpreting the role of two miRNAs in enabling the permissivity of Yellow Fever Virus infection to help develop animal models by employing cloning, cell culture, transfections
- Collaborated on projects to aid in construction and validation of vaccine candidate for SARS-CoV-2

Boston University School of Medicine Jun 2020-Sep 2020
Summer Intern

- Employed deep learning skills (PyTorch) to develop a deep neural network to annotate the structure of human vasculature from IVUS images
- Conducted bench work to understand the role of TMIGD1, a putative tumor suppressor gene using western blot, transformations, and cell culture

Vallabhbhai Patel Chest Institute, Delhi University May 2018-Apr 2019
Summer Intern and Master's Thesis Project

- Determined and quantified effect of miRNA-155 on the replication dynamics of Chikungunya Virus
- Performed various molecular biology and RDT experiments to illuminate endoplasmic reticulum stress in Chikungunya Virus infected mammalian cells

PROJECTS

- **COVID-19 Virus-Host Interactome of Lung Tissue PPI Analysis to Understand Biological Relevance and Therapeutic Modalities:** Created an interactome to identify protein complexes of interest utilizing guilt-by-association and using these complexes as targets for repurposing existing drugs
- **Single Cell RNA-Seq Analysis of Pancreatic Cells:** Quantified reads of raw single cell RNA-Seq data. Generated a whitelist of infrequent barcodes. Created UMI counts matrix using salmon alevin and analyzed salmon statistics
- **Concordance of Microarray and RNA-Seq Differential Gene Expression:** Ran feature counts to count reads obtained from STAR analysis followed by Multiqc. Analyzed differential expression via DESeq2 and visualized it
- **Transcriptional Profile of Mammalian Cardiac Regeneration with mRNA Seq:** Extraction of significant differentially expressed genes from cuffdiff results. Functional enrichment done via DAVID

- **Microarray based Tumor Classification of Colon Cancer Subtypes:** Performed gene set enrichment analysis of top 1000 differentially regulated genes in the C3 and C4 subtypes of colon cancer with MSigDB gene sets
- ***In vitro* Study of Role of miRNA 155 in Replication Dynamics of Chikungunya virus:** A 10- fold downregulation was reported in early stages of Chikungunya virus- infected cells overexpressing the miRNA

PUBLICATIONS

Kumar, P., Khanna, M., Kumar, B., Manocha, N., Saini, S., & Deengar, A. (2019). *Epidemiological Review of Pandemic Influenza A (H1N1) Virus*. Virology & Retrovirology Journal. Published February 18, 2019